DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-026060
Date Inspected: 12-Aug-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girder & Tower

Summary of Items Observed:

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed on the various field fit-up of weld joints and the Complete Joint Penetration (CJP). The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the Flux Cored Arc Welding (FCAW-G). processes.

A). OBG E11/E12

The QAI observed the continued CJP welding of the side plate field splice identified as 11E-12E-C utilizing the semi-automatic FCAW-G welding process as per the WPS ABF-WPS-D15-3042B-1 Rev. 0. The welding was performed by the welding operator James Zhen ID-6001and the inspection was performed by the QC inspector William Sherwood utilizing the Welding Procedure Specification (WPS) as a reference during the monitoring of the welding and verifying the welding parameters. The welding parameters were noted by the QC inspector and observed and verified by the QAI as follows; 239 amps, 24.6 volts and a travel speed measured at 182 mm/m. The welding was performed in the overhead (4G) position with the work placed in a fixed position at an approximate 22 degree incline. The welding was not completed during this shift and appeared to comply with the contract documents.

B). Tower Shear Plates

The QAI observed the base metal repair welding located at joint "N" above the shear plate ESW identified as WN:

E-041. The welding was performed by Richard Garcia ID-5892 utilizing the SMAW as per the WPS identified as ABF-WPS-D15-1000-Repair, Rev. 2. The welding was performed in the horizontal (2G) position with the work placed in an approximate vertical plane with the groove approximately horizontal. The minimum preheat of 140 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract specifications. The QAI also observed the QC inspector, John Pagliero, monitor the welding and verify the welding parameters utilizing the WPS as a reference to perform this task. The welding parameters of 116 amps were noted by the QC inspector and verified by the QAI. The welding was not completed during this shift.

The QAI also observed the base metal repair welding located at joint "S" above the shear plate ESW identified as WN: S-041. The welding was performed by Jeremy Dolman ID-5042 utilizing the SMAW as per the WPS identified as ABF-WPS-D15-1000-Repair, Rev. 2. The welding was performed in the horizontal (2G) position with the work placed in an approximate vertical plane with the groove approximately horizontal. The minimum preheat of 140 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract specifications. The QAI also observed the QC inspector, John Pagliero, monitor the welding and verify the welding parameters utilizing the WPS as a reference to perform this task. The welding parameters of 115 amps were noted by the QC inspector and verified by the QAI. The welding was completed during this shift.

The QAI observed the Ultrasonic Testing (UT) of the ESW Butt and T-Joints identified as WN: W-045, WN: W-044, WN: S-045, WN: S-044 and WN: E-044 located at joints "H", "D", "G", "C" and "B" accordingly. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination was also conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-108 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 1.0" diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. At the conclusion of testing the welds no rejectable indications were noted by the QC technician. The areas tested was 300 mm in length starting from the top of the shear plate. The QAI also verified the testing of the ESW and concurs with the QC inspector. For location and additional information see the TL-6027 generated on this date.

C). OBG E9 and E10

The QAI performed a random Ultrasonic Test (UT) and Magnetic Particle Test (MPT) of the CJP groove welds of the lifting lug holes identified as 9E-PP80-E3, W1-W4 and 10E-PP88-E4, W1-W4. A total area of approximately 50% was tested to verify the weld and the testing performed by QC meet the requirements of the contract documents. For additional information and locations please see the UT report, TL-6027, and the MPT report, TL-6028, generated on this date.

This QA Inspector also performed a daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders, Longitudinal and Transverse "A" Deck Stiffeners and Deck Access Holes.

QA Summary

The welding was performed in the flat, horizontal and overhead positions utilizing the E7018-H4R and the E71T-1 consumables. The 3.2 mm H4R electrodes were stored in a electrically heated, thermostatically controlled oven after the removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical welding parameters and Tempil Heat Indicators for verifying the preheat and interpass temperatures. At the time of the observation no issues were noted by the QAI.

Summary of Conversations:

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer